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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,093	02/27/2004	Todd Holverson	ITW 12843.60	7700

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EXAMINER	
SHAW, CLIFFORD C	
ART UNIT	**PAPER NUMBER**
1725	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,093	HOLVERSON ET AL.	
	Examiner	Art Unit	
	Clifford C. Shaw	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-23,43,44,49-56,58 and 80-82* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *80-82* is/are allowed.

6)☒ Claim(s) *1-4,9-21,43,44,49-56 and 58* is/are rejected.

7)☒ Claim(s) *5-7,22 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

1.) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.) Claims 1, 2, 9-14, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stava (6,111,216, of record) taken with the "Metals Handbook, vol. 8" excerpt, pages 148-151, newly cited. The patent to Stava (6,111,216) teaches a method of MIG welding with the features claimed, including: providing AC power to a MIG welding arc as discussed at column 1, lines 29-30 and at column 7, lines 54-55; wherein the negative portion is greater than the positive portion as shown in figures 5-7 and discussed in column 10; wherein the frequency of the AC power to the MIG arc corresponds to the claimed frequencies (see column 4, lines 25-30 in Stava (6,111,216) wherein a frequency range of 40Hz to 200 Hz is disclosed). The only aspects of the claims to which the teachings of Stava (6,111,216) do not apply are: the provision for weld path grooves with particular angles; the provision for particular welding rates per hour; and the provision for particular relationships between the positive and negative portions of the output waveform. These differences do not patentably distinguish over the prior art. The patent to Stava (6,111,216) does not explicitly discuss details related to the workpieces that can be welded by the power supply disclosed therein. Absent such a discussion, the artisan of ordinary skill would apply the power supply of Stava (6,111,216) to weld any conventional

workpiece suitable for arc welding. It is considered obvious that such a conventional workpiece could include groove angles falling within the ranges claimed in view of the teachings of the "Metals Handbook, vol. 8" excerpt that such angles are conventional in arc welded workpieces (see the various groove geometries in the figures on pages 148 through 151 of the "Metals Handbook, vol. 8" excerpt). In regard to the claimed welding rates, it would have been obvious to have used the power supply of Stava at any desired welding rate, depending on the production requirements of a particular job. In regard to the claimed relationship between the positive and negative portions of the weld current, in its column 10, the patent to Stava teaches that the positive and negative parameters of the power supply output can be adjusted. The particular values claimed by applicant are not seen to be critical for any particular result or for any unexpected result. It would have been obvious to have adjusted the plus/minus parameters of the Stava power supply to meet the heating requirements of a particular welding job. These adjustments could obviously fall within the range claimed, depending on the requirements of the job.

3.) Claims 15, 16, 43, 44, 49, 50, 54-56, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stava (6,111,216) taken with the "Metals Handbook, vol. 8" excerpt as applied to claims 1, 2, and 9-14 above, and further in view of Woodacre (4,092,517, of record). The only aspect of the claims to which the rejection above does not apply is the provision for a negative polarity start portion with particular durations. This difference does not patentably distinguish over the prior art. At the time applicant's invention was made, it would have been obvious to have used an initially negative start period as claimed for the system of Stava

(6,111,216), the motivation being the teachings of Woodacre that such is advantageous for a pulsating a.c. power supply (see figures 3a – 3g in Woodacre and the discussion thereof and note that at his column 9, lines 25-30, Woodacre teaches that his system is suitable for MIG welding). In regard to the particular durations for the negative polarity start period, applicant argues that his claimed durations are much longer than any that would be suggested by the prior art (see the "Remarks" section of the amendment filed 10/5/2005). This argument is not persuasive. The claimed duration periods are not considered to patentably distinguish over the prior art. The teachings of an initially negative pulse in Woodacre (4,092,517) is directed toward assisting the starting of an arc welding operation (see for example, column 2, lines 39-45 in Woodacre (4,092,517)). It is considered obvious that the duration of the pulse would be chosen based on routine experimentation to determine what works best for a particular welding problem. Indeed, the patent to Woodacre (4,092,517) does not teach any particular duration value, leaving it to the artisan to chose one. It is considered obvious that the durations for the initially negative pulse as taught by Woodacre (4,092,517) and applied to the system of Stava (6,111,216), be those claimed, based on routine experimentation to achieve the best starting results for a particular welding problem, thereby satisfying the claims.

4.) Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stava (6,111,216) taken with the "Metals Handbook, vol. 8" excerpt as applied to claims 1, 2, and 9-14 above, and further in view of Cary (3,309,490, of record). The only aspects of the claims to which the rejection above does not apply are the provisions for flux cored or metal cored wires.

These differences do not patentably distinguish over the prior art. The time applicant's invention was made, it would have been obvious to have used wires as claimed in the system of Stava (6,111,216), the motivation being the teachings of Cary (3,309,490) that such are suitable for use with alternating current MIG welding (see the alternating current MIG welder as shown in figure 1 of Cary (3,309,490) and note the compositions of the cored electrodes as shown in columns 3 and 4).

5.) Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stava (6,111,216) taken with the "Metals Handbook, vol. 8" excerpt, pages 148-151 as applied to claims 1, 2, and 9-14 above, and further in view of Zvanut (3,585,352, newly cited). The only aspects of the claims to which the rejection above does not apply are: the provision for a particular stick-out length; and the provision for a particular value of gas flow. These differences do not patentably distinguish over the prior art. At the time applicant's invention was made, it would have been obvious to have used a stick-out as claimed, the motivation being the teachings of Zvanut (3,585,352) that such a stick-out length is useful when welding with a flux-cored electrode (see column 11, lines 25-65 in Zvanut (3,585,352) and note the statement at lines 31-32, " ... any degree of stickout can be provided from the standard three-fourth inch, or less, to several inches or more"). In regard to claim 18, the particular gas flow rate is not seen to be critical for achieving any particular result, but is considered to be exemplary of a routine choice for adapting the system of Stava (6,111,216) for a particular welding problem. It would have been obvious to have used the gas flow rate claimed in using the system of Stava (6,111,216), the

motivation being to adjust gas flow rate for a particular welding problem that required such a flow rate.

6.) Claims 51 - 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stava (6,111,216) taken with the "Metals Handbook, vol. 8" excerpt, pages 148-151 taken with Woodacre (4,092,517) as applied to claims 15, 16, 43, 44, 49, 50, 54-56, and 58 above, and further in view of Cary (3,309,490). The only aspects of the claims to which the rejection above does not apply are the provisions for flux cored or metal cored wires. These differences do not patentably distinguish over the prior art. The time applicant's invention was made, it would have been obvious to have used wires as claimed in the system of Stava (6,111,216), the motivation being the teachings of Cary (3,309,490) that such are suitable for use with alternating current MIG welding (see the alternating current MIG welder as shown in figure 1 of Cary (3,309,490) and note the compositions of the cored electrodes as shown in columns 3 and 4).

7.) Claims 5-7, 22, and 23 are objected to for depending from rejected claims, but would be given favorable consideration if recast in independent form to include all of the limitations of the parent claims. None of the prior art of record teaches or suggests the particular flux composition in combination with the other claim limitations.

8.) Claims 80-82 are allowable over the prior art of record. None of the prior art of record teaches or suggests controlling dilution in the manner claimed.

9.) Applicant's "Remarks" in his amendment filed on 10/05/2005 have been given careful consideration, but are not persuasive of patentability. Applicant's discussion of the term "metal core wire" has been considered and found persuasive. The rejection under 35USC112 has been withdrawn. Claims 5-7, 22, 23, and 80-82 are deemed to contain patentable subject matter as discussed above. The other claims are considered unpatentable for the reasons set forth above.

Any inquiry concerning this communication should be directed to Clifford C Shaw at telephone number 571-272-1182. The examiner can normally be reached on Monday through Friday of the first week of the pay period and on Tuesday through Friday of the second week of the pay period.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas G. Dunn, can be reached at 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Clifford C Shaw
Primary Examiner
Art Unit 1725

December 23, 2005